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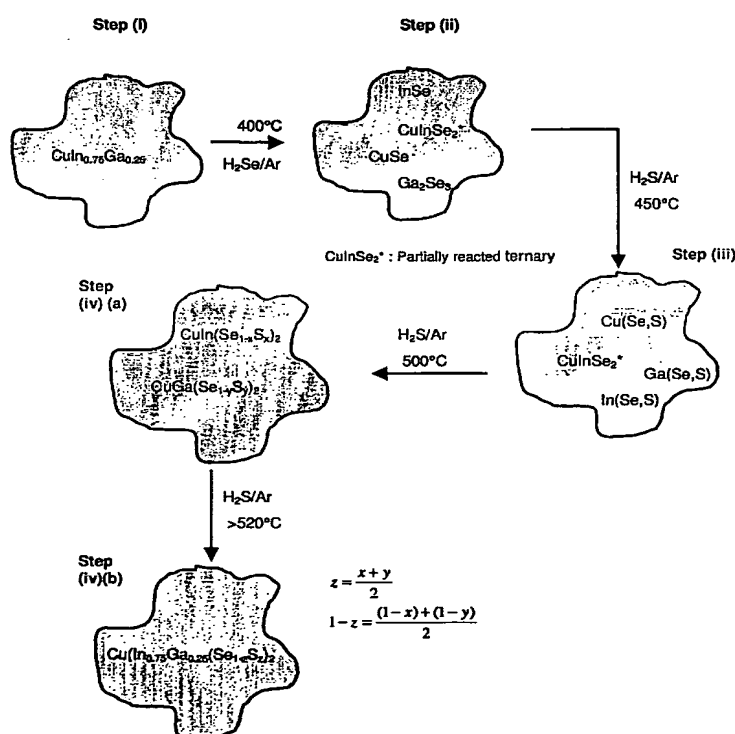
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(54) Title: METHOD FOR THE PREPARATION OF GROUP IB-III<sub>A</sub>-VIA QUATERNARY OR HIGHER ALLOY SEMICONDUCTOR FILMS



(57) Abstract: This invention relates to a method for producing group IB-III<sub>A</sub>-VIA quaternary or higher alloy semiconductor films wherein the method comprises the steps of (i) providing a metal film comprising a mixture of group IB and group III<sub>A</sub> metals; (ii) heat treating the metal film in the presence of a source of a first group VIA element (said first group VIA element hereinafter being referred to as VIA<sub>1</sub>) under conditions to form a first film comprising a mixture of at least one binary alloy selected from the group consisting of a group IB-VIA<sub>1</sub> alloy and a group III<sub>A</sub>-VIA<sub>1</sub> alloy and at least one group IB-III<sub>A</sub>-VIA<sub>1</sub> ternary alloy (iii) optionally heat treating the first film in the presence of a source of a second group VIA element (said second group VIA element hereinafter being referred to as VIA<sub>2</sub>) under conditions to convert the first film into a second film comprising at least one alloy selected from the group consisting of a group IB-VIA<sub>1</sub>-VIA<sub>2</sub> alloy and a group III<sub>A</sub>-VIA<sub>1</sub>-VIA<sub>2</sub> alloy; and the at least one group IB-III<sub>A</sub>-VIA<sub>1</sub> ternary alloy of step (ii); (iv) heat treating either the first film or second film to form a group IB-III<sub>A</sub>-VIA quaternary or higher alloy semiconductor



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